

**COMMONWEALTH OF MASSACHUSETTS**  
**Department of Telecommunications and Energy**

RESPONSE OF THE ATTORNEY GENERAL TO THE  
SECOND SET OF INFORMATION REQUESTS FROM THE  
BAY STATE GAS COMPANY  
DTE 05-27

Dated: August 2, 2005

Responsible Party: Jon Cavallo

BSG-AG-2-26            Please refer to the Cavallo Testimony at 9, lines 18-20. (a) Define “defense-in-depth.” (b) Provide examples of the use of this phrase in natural gas distribution industry literature. (c) Provide copies of all “root cause analyses” conducted by Mr. Cavallo on corrosion in underground unprotected coated and bare mains and pipes of natural gas distribution utility systems and (d) name the natural gas distribution companies for whom such root cause analyses were performed.

Response:            “Defense-in-depth” is a technique often used in corrosion mitigation. This technique involves the use of two or more corrosion mitigation methods in tandem to account for imperfections in materials, component manufacturing and/or construction practices. An example of “defense-in-depth” as related to buried gas distribution piping is the current practice of coating carbon steel pipe and application of impressed current cathodic protection. Although Mr. Cavallo has performed both root causes analyses and failure analyses related to corrosion, he has not performed a root cause analysis “on corrosion on unprotected coated and bare mains and pipes of natural gas distribution utility systems.”

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